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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,476	01/15/2004	Seong-Hak Moon	P-0642	4149

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KED & ASSOCIATES, LLP
P.O. Box 221200
Chantilly, VA 20153-1200

EXAMINER	
BODDIE, WILLIAM	
ART UNIT	**PAPER NUMBER**
2629	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/757,476	MOON, SEONG-HAK	
	Examiner	Art Unit	
	William L. Boddie	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5,8-15 and 18-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5,8-15 and 18-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In an amendment dated, November 28th, 2007, the Applicant amended claims 1, 8, 10, 12, 14, 18, 20-21 and cancelled claims 6-7 and 16-17. Currently claims 1, 3, and 5, 8-15 and 18-21 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 28th, 2007 has been entered.

Response to Arguments

3. Applicant's arguments filed November 28th, 2007 have been fully considered but they are not persuasive.

4. All of the Applicant's arguments have been fully considered, but are seen as directed to new limitations and are believed to be answered by the updated rejections which follow and are therefore the arguments are therefore moot.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 19 recites the limitation "the upper switching control signal" in line 2. There is insufficient antecedent basis for this limitation in the claim.

7. Claim 21 recites the limitation "the switching devices" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. It appears the Applicant might have intended that claim 21 be dependent upon claim 20.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 3 and 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Kubota et al. (US 5,754,155).

With respect to claim 1, Kubota discloses, an apparatus (fig. 1) for driving a flat display panel (LCD panel; 1 in fig. 1) comprising a scan driving unit (11 in fig. 1) for controlling an upper voltage value (Vgh in fig. 1) and a lower voltage value (Vgl in fig. 1) which are applied to an integrated circuit (IC) (3 in fig. 1) for driving a scan electrode (GL in fig. 1) of the flat display panel,

wherein the scan driving unit comprises a timing control unit (104 in fig. 20) for outputting a timing control signal (TIM in fig. 20), an upper voltage generating unit (106 in fig. 20; 15a in fig. 2) for outputting the upper voltage value, a lower voltage generating unit (106 in fig. 20; 15b in fig. 2) for outputting the lower voltage value, and an amplifying unit (13b in fig. 2) for amplifying the upper voltage value applied to the scan driving unit to a predetermined level (col. 9, line 61 – col. 10, line 21), wherein the scan

driving unit selectively outputs one of the amplified upper voltage value and lower voltage value on the basis of the timing control signal (col. 3, lines 34-46).

To further explain, Kubota expressly discloses, that the upper and lower voltages are selectively output depending on the amplitude of the "DATA" video signal (col. 3, lines 34-46). For this selection to occur the scan driver output of Kubota must inherently be based on a timing control signal that is supplied to both the data and scan drivers. Furthermore, in order for the display to function at all requires a rigid synchronization between the data and scan drivers. Therefore the output of the scan driver, the upper and lower voltages, must be based on a timing control signal.

With respect to claim 3, Kubota discloses, the apparatus of claim 1 (see above) wherein the amplifying unit comprises an operational amplifier (op-amp) (clear from fig. 4; col. 9, line 66).

With respect to claim 14, Kubota discloses, an apparatus (fig. 1) comprising:

a scan driving unit (11 in fig. 1) to control an upper voltage value (Vgh in fig. 1) and a lower voltage value (Vgl in fig. 1) to be applied to a circuit (3 in fig. 1) for driving a scan electrode (GL in fig. 1) of a flat display panel (1 in fig. 1), the scan driving unit includes a timing control unit (104 in fig. 20) for outputting a timing control signal (TIM in fig. 20), an upper voltage generating unit (106 in fig. 20; 15a in fig. 4) for outputting the upper voltage value, a lower voltage generating unit (106 in fig. 20; 15b in fig. 4) for outputting the lower voltage value, and an amplifying unit (13b in fig. 4) for converting the upper voltage value applied to the scan driving unit to a current and amplifying the current to a predetermined level (col. 9, line 61 – col. 10, line 21; col. 10, lines 22-26),

wherein the scan driving unit selectively outputs the amplified current or the lower voltage value based on the timing control (col. 3, lines 34-46; also note the above discussion in claim 1).

With respect to claim 15, Kubota discloses, the apparatus of claim 14 (see above), wherein the amplifying unit comprises an operational amplifier (clear from fig. 4; col. 9, line 66).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US 5,754,155) in view of Furuhashi et al. (US 6,756,958).

With respect to claim 5, Kubota discloses, the apparatus of claim 1 (see above), wherein the amplifying unit comprise an OP-AMP (clear from fig. 4; col. 9, line 66).

Kubota does not expressly disclose, a transistor connected to an output terminal of the OP-AMP.

Furuhashi discloses, wherein an amplifying unit for a LCD scan driver comprising an OP-AMP (313 in fig. 2; col. 4, lines 17-23) and a TR (314 in fig. 2; col. 4, lines 19-23) connected to an output terminal of the OP-AMP (clear from fig. 2).

Furuhashi and Kubota are analogous art because they are both from the same field of endeavor namely, LCD scan driver voltage supply circuitry.

At the time of the invention it would have been obvious to one of ordinary skill in the art to including the transistors of Furuhashi in the amplifying circuitry of Kubota.

The motivation for doing so would have been to enhance the picture quality (Furuhashi; col. 2, lines 16-21).

12. Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US 5,754,155) in view of Kudo (US 6,118,425).

With respect to claims 18-21, Kubota discloses, the apparatus of claim 14 (see above).

Kubota does not expressly disclose wherein the upper and lower voltage generating units comprise switching devices.

Kudo discloses, a LCD power supply (fig. 12) comprising:

an upper voltage generating unit (231 in fig. 12) for outputting an upper voltage value (Vyh in fig. 12) on the basis of an upper switching control signal (CCH in fig. 12); and

a lower voltage generating unit (232 in fig. 12) for outputting a lower voltage value (Vyl in fig. 12) on the basis of a lower switching control signal (CCL in fig. 12).

Kudo further discloses, wherein the upper and lower voltage generating units comprise switching devices (231-232 in fig. 12) which are switched on/off on the basis of the upper and lower switching control signals (CCH and CCL in fig. 12).

Kudo and Kubota are analogous art because they are both from the same field of endeavor namely, LCD scan driver voltage supply circuitry.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the switching circuitry of Kudo in the driver circuitry of Kubota.

The motivation for doing so would have been reduce shadowing and display irregularities (Kudo; col. 2, lines 39-52).

13. Claims 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US 5,754,155) in view of Kudo (US 6,118,425) and further in view of Kishi et al. (5,786,794).

With respect to claims 8, 10 and 12, Kubota discloses, the apparatus of claim 1(see above).

Kubota does not expressly disclose wherein the upper and lower voltage generating units comprise switching devices.

Kudo discloses, a LCD power supply (fig. 12) comprising:

an upper voltage generating unit (231 in fig. 12) for outputting an upper voltage value (Vyh in fig. 12) on the basis of an upper switching control signal (CCH in fig. 12); and

a lower voltage generating unit (232 in fig. 12) for outputting a lower voltage value (Vyl in fig. 12) on the basis of a lower switching control signal (CCL in fig. 12).

Kudo further discloses, wherein the scan driving unit further comprises switching devices (231-232 in fig. 12) which are switched on/off on the basis of the upper and lower switching control signals (CCH and CCL in fig. 12).

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the switching circuitry of Kudo in the driver circuitry of Kubota.

The motivation for doing so would have been reduce shadowing and display irregularities (Kudo; col. 2, lines 39-52).

Neither Kubuto nor Kudo expressly disclose, wherein the switching devices have a push-pull form turned on/off on the basis of the upper and lower switching control signals.

Kishi discloses, a LCD driver circuit wherein voltage generating unit comprises switching devices (TR6 and TR7 in fig. 1) having a push-pull form (col. 6, line 66 – col. 7, line 5) turned on/off on the basis of a switching control signal (col. 10, lines 37-61).

Kubuto, Kudo and Kishi are all analogous art because they are all from the same field of endeavor, namely LCD scan driver voltage supply circuitry.

At the time of the invention it would have been obvious to one of ordinary skill in the art to construct the voltage selectors of Kudo and Kubuto out of the push-pull transistor form taught by Kishi.

The motivation for doing so would have been both the low manufacturing costs and simple design associated with a push-pull transistor circuit.

With respect to claims 9, 11 and 13, Kubota, Kishi and Kudo disclose, the apparatus of claims 8, 10 and 12 (see above).

Kishi further discloses, wherein the switching devices comprise a FET (col. 10, lines 48-53).

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Will L. Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Wlb
2/14/08

ALEXANDER EISEN
SUPERVISORY PATENT EXAMINER